

That Which Is Claimed Is:

1 1. An audio communications control system useful in training operations on
2 tactical systems communications equipment onboard a ship, the audio communications
3 control system comprising:

4 ship communications equipment operable from a plurality of remote locations
5 onboard a ship for communication with a centralized control center, the ship
6 communications equipment including a plurality of audio communications systems,
7 wherein at least one of the plurality of audio communications systems includes audio
8 equipment and signal processing unlike that of the balance of the plurality of audio
9 communications systems.

10 a tactical training system operable with the central control center for interfacing
11 with tactical equipment distributed through the plurality of remote locations, the tactical
12 training system providing a communications connection to a wide area network (WAN)
13 for communicating with other ships participating in a training exercise;

14 a headset having a left speaker, a right speaker, and a microphone for providing
15 an operator with voice transmission;

16 an audio interface operable between the tactical training system and the
17 headset, the audio interface providing an electrical connection to the ship
18 communications equipment for operation therewith, the audio interface switching
19 discrete audio communications connections from any ship communications equipment
20 and routing audio signals representative of the discrete connections to each of the left
21 speaker, the right speaker, and the microphone of the headset; and

22 an operator control interface operable with the audio interface for controlling the
23 routing and switching of the audio signals, the operator control interface including an
24 interactive graphical display for selection of the communications equipment to be
25 operable with the headset.

1 2. The audio communications control system according to Claim 1, wherein

2 the ship communications equipment comprises communications equipment selected
3 from the group consisting of a tactical radio telephone system, an interphone system, a
4 sound power telephone system, and a surface ship telephone system.

1 3. The audio communications control system according to Claim 1, wherein
2 the tactical training system comprises a battle force tactical trainer.

3 4. The audio communications control system according to Claim 1, wherein
4 the audio interface comprises a central processing unit operable with the operator
5 control interface for processing control functions thereof, and wherein the central
6 processing unit receives input from a computer mouse for selection of the routing and
7 switching.

8 5. The audio communications control system according to Claim 1, further
9 comprising:

- 1 a personal computer operable with the audio interface;
- 2 a monitor operable with the personal computer for displaying the graphical
- 3 display; and
- 4 an input device for operation with the operator control interface.

5 6. The audio communications control system according to Claim 5, wherein
6 the input device comprises a computer mouse operable with the monitor for selecting
7 the communications system and routing of audio signals to the headset.

8 7. The audio communications control system according to Claim 1, wherein
9 the audio interface includes a network control module for sending and receiving
1 network packets of information across the WAN.

2 8. The audio communications control system according to Claim 1, wherein
3 the audio interface includes a digital signal processor for converting analog audio signal

3 received from the communications equipment into a digital signal for processing
4 thereof.

1 9. The audio communications control system according to Claim 8, further
2 comprising a time encoder operable with a global positioning system for time stamping
3 of audio packets transmitted and received via the WAN.

1 10. The audio communications control system according to Claim 1, wherein
2 the graphical display of the operator control interface comprises left and right channel
3 graphical user interface buttons for selection of a desired audio connection to the
4 communications equipment.

1 11. The audio communications control system according to Claim 1, wherein
2 the graphical display of the operator control interface comprises scenario control
3 buttons for selection of a desired virtual frequency channel of the WAN for input to one
4 of the left speaker and the right speaker, as desired.

1 12. The audio communications control system according to Claim 1, wherein
2 the graphical display of the operator control interface comprises an interphone button
3 for accessing equipment within an interphone communications system through
4 selection on a speed dial menu.

1 13. The audio communications control system according to Claim 1, wherein
2 the graphical display comprises a graphical user interface display that is reconfigurable
3 to a desired communications system display.

1 14. An audio communications control system comprising:
2 a single headset having a left speaker, a right speaker, and a microphone for
3 providing an operator with voice transmission;
4 an audio interface for operating between a plurality of audio communications

5 equipment and the single headset, the audio interface providing an electrical
6 connection to the plurality of voice communications systems for operation therewith, the
7 audio interface switching discrete audio communications signals therefrom and routing
8 the audio signals to one of the left speaker, the right speaker, and the microphone of
9 the headset; and

10 an operator control interface operable with the audio interface for controlling the
11 routing and switching of the audio signals, the operator control interface including a
12 display for viewing by the operator and manual selection of the discrete audio
13 communications signals to be operable with the single headset.

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15 **15.** The audio communications control system according to Claim 14, wherein
16 the audio signals comprises voice signals.

17 **16.** The audio communications control system according to Claim 14, further
18 comprising a second headset operable with the audio interface for use by a second
19 operator, the second headset being the single headset for the second operator.

20 **17.** The audio communications control system according to Claim 14, further
21 comprising audio communications equipment operable from a plurality of remote
22 locations for communication with a centralized control center, the communications
23 equipment including a plurality of audio communications systems, wherein at least one
24 of the plurality of audio communications systems includes audio equipment and signal
25 processing unlike that of the balance of the plurality of audio communications systems.

26 **18.** The audio communications control system according to Claim 17, wherein
27 the communications equipment includes communications equipment selected from the
28 group consisting of a tactical radio telephone system, an interphone system, a sound
29 power telephone system, and a surface ship telephone system.

30 **19.** The audio communications system according to Claim 14, wherein the

2 audio interface comprises a central processing unit operable with the operator control
3 interface for processing control functions thereof, and wherein the central processing
4 unit receives input from a computer mouse for selection of the routing and switching.

1 **20.** The audio communications system according to Claim 14, further
2 comprising:

3 a personal computer operable with the audio interface;
4 a monitor operable with the personal computer for providing the display, wherein
5 the display includes a graphical user display; and
6 an input device for operation with the operator control interface.

21. The audio communications system according to Claim 20, wherein the
input device comprises a computer mouse operable with the monitor for selecting the
communications system and routing of audio signals to the headset.

22. The audio communications system according to Claim 14, wherein the
audio interface includes a network control module for sending and receiving network
packets of information across a wide area network (WAN).

23. The audio communications system according to Claim 22, further
2 comprising a time encoder operable with a global positioning system for time stamping
3 of audio packets transmitted and received via the WAN.

1 **24.** The audio communications system according to Claim 23, wherein the
2 display of the operator control interface comprises a graphical user display including
3 scenario control buttons for selection of a desired virtual frequency channel of the WAN
4 for input to one of the left speaker and the right speaker, as desired.

1 **25.** The audio communications system according to Claim 14, wherein the
2 display of the operator control interface comprises a graphical user display including left

3 and right channel buttons for selection of a desired audio connection to the
4 communications equipment.

1 26. The audio communications system according to Claim 25, wherein the
2 graphical display comprises a graphical user interface display that is reconfigurable to a
3 desired communications system display.

11
27. The audio communications system according to Claim 14, wherein the
audio interface includes a digital signal processor for converting analog audio signal
received from the communications equipment into a digital signal for processing
thereof.

28. A method for communicating with a plurality of voice communications
systems, the method comprising the steps of:

providing a single headset having a left speaker, a right speaker, and a
microphone for providing an operator with voice transmission;

electrically connecting an audio interface between a plurality of audio
communications systems and the single headset, the audio interface switching discrete
audio communications signals from the plurality of audio communications systems and
routing the discrete audio signals to one of the left speaker, the right speaker, and the
microphone of the headset in response to a command from an operator;

providing a graphical user interface operable with the audio interface for
controlling the routing and switching of the audio signals, the operator control interface
including a push button styled display for viewing by the operator and manual selection
of discrete audio communications signals for operating with the headset; and

operating the graphical user interface for connection to a first discrete audio
communications system and routing a first discrete audio signal to one of the left
speaker and the right speaker of the single headset;

operating the graphical user interface for connection to a second discrete audio
communications system and routing a second discrete audio signal to another of the

19 left speaker and the right speaker of the single headset; and
20 operating the graphical user interface for connection of the microphone of the
21 headset to a third discrete audio communications system.

1 29. The communicating method according to Claim 28, wherein the audio
2 signals comprises voice signals.

3 30. The communicating method according to Claim 28, further comprising the
4 step of providing a second single headset operable with the audio interface by a second
5 operator.

6 31. The communicating method according to Claim 28, wherein at least one
7 of the plurality of audio communications systems includes audio equipment and signal
8 processing unlike that of the balance of the plurality of audio communications systems.

9 32. The communicating method according to Claim 28, further comprising the
10 steps;
11 connecting a personal computer to the audio interface;
12 providing a monitor operable with the personal computer for displaying the
13 graphical user interface thereon; and
14 connecting a computer input device to the personal computer for actuating the
15 graphical user interface.

16 33. The communicating method according to Claim 32, wherein the input
17 device connecting step comprises the step of connecting a computer mouse operable
18 with the monitor.

19 34. The communications method according to Claim 28, further comprising
20 the step of selecting control buttons of the graphical user interface for communication
21 between the headset and a wide area network (WAN), wherein the audio interface

4 includes a network control module for sending and receiving network packets of
5 information across the WAN.

1 35. The communications method according to Claim 34, further comprising
2 the step of time encoding a recording of voice communications using a global
3 positioning system for time stamping of audio packets transmitted and received via the
4 WAN.
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6 36. The audio communications system according to Claim 35, wherein the
7 display of the operator control interface comprises a graphical user display including
8 scenario control buttons for selection of a desired virtual frequency channel of the WAN
9 for input to one of the left speaker and the right speaker, as desired.
10

11 37. The communicating method according to Claim 28, further comprising the
12 step of configuring the graphical user interface for displaying control and switching
13 buttons operable with a preselected set of communications systems.
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15 38. The communicating method according to Claim 37, wherein the
16 configuring step comprises the step of displaying left and right channel buttons.
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